CLAIMS

What is claimed is:

1 1.   A method to blend two images, the method comprising:

2   loading a vector of keys into a vector register;

3   converting the vector of keys into a first vector of blending factors for a first

4   image and a second vector of blending factors for a second image

5   using a plurality of look up tables in a vector look up unit; and

6   computing an image attribute for a blended image using the blending factors.

1 2.   A method as in claim 1 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1 3.   A method as in claim 1 wherein said converting comprises:

2   generating a first vector of indices in a vector register by replicating a first

3   subset of the vector of keys as a first subset of the first vector of

4   indices for looking up first blending factors for the first image and

5   replicating the first subset of the vector of keys as a second subset of

6   the first vector of indices for looking up second blending factors for

7   the second image; and

8   looking up simultaneously the first and second blending factors using the

9   first vector of indices in the vector look up unit.

1   4.   A method as in claim 3 further comprising:

2   storing the first blending factors into the first vector of blending factors and

3   the second blending factors into the second vector of blending

4   factors.

1   5.   A method as in claim 1 wherein said converting comprises:

2   generating a first vector of indices in a vector register, one key in the vector

3   of keys being replicated as a first plurality of indices in the first

4   vector of indices for looking up respectively a plurality of bit

5   segments of a first blending factor; and

6   looking up simultaneously a first vector of blending factors comprising the

7   first blending factor using the first vector of indices in the vector look

8   up unit.

1   6.   A method to blend two images, the method comprising:

2   loading a first vector of keys into a vector register;

3   loading a second vector of keys into a vector register;

4   converting the first vector of keys into a first vector of blending factors for a

5   first image and the second vector of keys into a second vector of

6   blending factors for a second image using a plurality of look up tables

7   in a vector look up unit; and

8   computing an image attribute for a blended image using the blending factors.

1   7.   A method as in claim 6 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1   8.   A method as in claim 6 wherein said converting comprises:

2   generating a first vector of indices in a vector register by replicating a first

3   subset of the first vector of keys as a first subset of the first vector of

4   indices for looking up first blending factors for the first image and

5   replicating a first subset of the second vector of keys as a second

6   subset of the first vector of indices for looking up second blending

7   factors for the second image; and

8   looking up simultaneously the first and second blending factors using the

9   first vector of indices in the vector look up unit.

1   9.   A method as in claim 8 further comprising:

2   storing the first blending factors into the first vector of blending factors and

3   the second blending factors into the second vector of blending

4   factors.

1   10.   A method as in claim 6 wherein said converting comprises:

2   generating a first vector of indices in a vector register, one key in the first

3   vector of keys being replicated as a first plurality of indices in the

4   first vector of indices for looking up respectively a plurality of bit

5   segments of a first blending factor; and

6   looking up simultaneously a first vector of blending factors comprising the

7   first blending factor using the first vector of indices in the vector look

8   up unit.

1   11.   A machine readable media containing executable computer program

2   instructions which when executed by a digital processing system cause said

3   system to perform a method to blend two images, the method comprising:

4   loading a vector of keys into a vector register;

5   converting the vector of keys into a first vector of blending factors for a first

6   image and a second vector of blending factors for a second image

7   using a plurality of look up tables in a vector look up unit; and

8   computing an image attribute for a blended image using the blending factors.

1   12.   A media as in claim 11 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1   13.   A media as in claim 11 wherein said converting comprises:

2   generating a first vector of indices in a vector register by replicating a first

3   subset of the vector of keys as a first subset of the first vector of

4   indices for looking up first blending factors for the first image and

5   replicating the first subset of the vector of keys as a second subset of

6   the first vector of indices for looking up second blending factors for

7   the second image; and

8   looking up simultaneously the first and second blending factors using the

9   first vector of indices in the vector look up unit.

1   14.   A media as in claim 13 wherein the method further comprises:

2   storing the first blending factors into the first vector of blending factors and

3   the second blending factors into the second vector of blending

4   factors.

1   15.   A media as in claim 11 wherein said converting comprises:

2   generating a first vector of indices in a vector register, one key in the vector

3   of keys being replicated as a first plurality of indices in the first

4   vector of indices for looking up respectively a plurality of bit

5   segments of a first blending factor; and

6   looking up simultaneously a first vector of blending factors comprising the

7   first blending factor using the first vector of indices in the vector look

8   up unit.

1   16.   A machine readable media containing executable computer program

2   instructions which when executed by a digital processing system cause said

3   system to perform a method to blend two images, the method comprising:

4   loading a first vector of keys into a vector register;

5   loading a second vector of keys into a vector register;

6   converting the first vector of keys into a first vector of blending factors for a

7   first image and the second vector of keys into a second vector of

8   blending factors for a second image using a plurality of look up tables

9   in a vector look up unit; and

10   computing an image attribute for a blended image using the blending factors.

1   17.   A media as in claim 16 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1   18.   A media as in claim 16 wherein said converting comprises:

2   generating a first vector of indices in a vector register by replicating a first

3   subset of the first vector of keys as a first subset of the first vector of

4   indices for looking up first blending factors for the first image and

5   replicating a first subset of the second vector of keys as a second

6   subset of the first vector of indices for looking up second blending

7   factors for the second image; and

8   looking up simultaneously the first and second blending factors using the

9   first vector of indices in the vector look up unit.

1   19.   A media as in claim 18 wherein the method further comprises:

2   storing the first blending factors into the first vector of blending factors and

3   the second blending factors into the second vector of blending

4   factors.

1   20.   A media as in claim 16 wherein said converting comprises:

2   generating a first vector of indices in a vector register, one key in the first

3   vector of keys being replicated as a first plurality of indices in the

4   first vector of indices for looking up respectively a plurality of bit

5   segments of a first blending factor; and

6   looking up simultaneously a first vector of blending factors comprising the

7   first blending factor using the first vector of indices in the vector look

8   up unit.

1   21.   A processing system to blend two images, the system comprising:

2   means for loading a vector of keys into a vector register;

3   means for converting the vector of keys into a first vector of blending factors

4   for a first image and a second vector of blending factors for a second

5   image using a plurality of look up tables in a vector look up unit; and

6   means for computing an image attribute for a blended image using the

7   blending factors.

1   22.   A processing system as in claim 21 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1   23.   A processing system as in claim 21 wherein said means for converting

2   comprises:

3   means for generating a first vector of indices in a vector register by

4   replicating a first subset of the vector of keys as a first subset of the

5   first vector of indices for looking up first blending factors for the first

6   image and replicating the first subset of the vector of keys as a second

7   subset of the first vector of indices for looking up second blending

8   factors for the second image; and

9   means for looking up simultaneously the first and second blending factors

10   using the first vector of indices in the vector look up unit.

1   24.   A processing system as in claim 23 further comprising:

2   means for storing the first blending factors into the first vector of blending

3   factors and the second blending factors into the second vector of

4   blending factors.

1 25. A processing system as in claim 21 wherein said means for converting

2   comprises:

3   means for generating a first vector of indices in a vector register, one key in

4   the vector of keys being replicated as a first plurality of indices in the

5   first vector of indices for looking up respectively a plurality of bit

6   segments of a first blending factor; and

7   means for looking up simultaneously a first vector of blending factors

8   comprising the first blending factor using the first vector of indices in

9   the vector look up unit.

1 26. A processing system to blend two images, the system comprising:

2   means for loading a first vector of keys into a vector register;

3   means for loading a second vector of keys into a vector register;

4   means for converting the first vector of keys into a first vector of blending

5   factors for a first image and the second vector of keys into a second

6   vector of blending factors for a second image using a plurality of look

7   up tables in a vector look up unit; and

8   means for computing an image attribute for a blended image using the

9   blending factors.

1 27. A processing system as in claim 26 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1   28.   A processing system as in claim 26 wherein said means for converting

2   comprises:

3   means for generating a first vector of indices in a vector register by

4   replicating a first subset of the first vector of keys as a first subset of

5   the first vector of indices for looking up first blending factors for the

6   first image and replicating a first subset of the second vector of keys

7   as a second subset of the first vector of indices for looking up second

8   blending factors for the second image; and

9   means for looking up simultaneously the first and second blending factors

10   using the first vector of indices in the vector look up unit.

1   29.   A processing system as in claim 28 further comprising:

2   means for storing the first blending factors into the first vector of blending

3   factors and the second blending factors into the second vector of

4   blending factors.

1   30.   A processing system as in claim 26 wherein said means for converting

2   comprises:

3   means for generating a first vector of indices in a vector register, one key in

4   the first vector of keys being replicated as a first plurality of indices

5   in the first vector of indices for looking up respectively a plurality of

6   bit segments of a first blending factor; and

7   means for looking up simultaneously a first vector of blending factors

8   comprising the first blending factor using the first vector of indices in

9   the vector look up unit.

1   31.   A processing system to blend two images, the system comprising:

2   a vector register file comprising a plurality of vector registers;

3   a vector processing unit coupled to the vector register file, the vector

4   processing unit comprising a vector look up unit adapted to look up a

5   vector of data items simultaneously, the vector processing unit:

6   loading a vector of keys into a vector register in the vector register file;

7   converting the vector of keys into a first vector of blending factors for a first

8   image and a second vector of blending factors for a second image

9   using a plurality of look up tables in the vector look up unit; and

10   computing an image attribute for a blended image using the blending factors.

1   32.   A processing system as in claim 31 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1 33. A processing system as in claim 31 wherein to convert the vector of keys the

2 vector processing unit:

3 generates a first vector of indices in a vector register in the vector register

4 file by replicating a first subset of the vector of keys as a first subset

5 of the first vector of indices for looking up first blending factors for

6 the first image and replicating the first subset of the vector of keys as

7 a second subset of the first vector of indices for looking up second

8 blending factors for the second image; and

9 looks up simultaneously the first and second blending factors using the first

10 vector of indices in the vector look up unit.

1 34. A processing system as in claim 33 wherein the vector processing unit stores

2 the first blending factors into the first vector of blending factors in a first

3 vector register in the vector register file and the second blending factors into

4 the second vector of blending factors in a second vector register in the vector

5 register file.

1 35. A processing system as in claim 31 wherein to convert the vector of keys the

2 vector processing unit:

3 generates a first vector of indices in a vector register in the vector register

4 file, one key in the vector of keys being replicated as a first plurality

5 of indices in the first vector of indices for looking up respectively a

6   plurality of bit segments of a first blending factor; and

7   looks up simultaneously a first vector of blending factors comprising the first

8   blending factor using the first vector of indices in the vector look up

9   unit.

1   36.   A processing system to blend two images, the system comprising:

2   a vector register file comprising a plurality of vector registers;

3   a vector processing unit coupled to the vector register file, the vector

4   processing unit comprising a vector look up unit adapted to look up a

5   vector of data items simultaneously, the vector processing unit:

6   loading a first vector of keys into a vector register in the vector register file;

7   loading a second vector of keys into a vector register in the vector register

8   file;

9   converting the first vector of keys into a first vector of blending factors for a

10   first image and the second vector of keys into a second vector of

11   blending factors for a second image using a plurality of look up tables

12   in the vector look up unit; and

13   computing an image attribute for a blended image using the blending factors.

1   37.   A processing system as in claim 36 wherein the blending factors are one of:

2   a) floating point numbers;

3   b) fixed point numbers; and

4   c) integers.

1   38.   A processing system as in claim 36 to convert the vector of keys the vector

2   processing unit:

3   generates a first vector of indices in a vector register by replicating a first

4   subset of the first vector of keys as a first subset of the first vector of

5   indices for looking up first blending factors for the first image and

6   replicating a first subset of the second vector of keys as a second

7   subset of the first vector of indices for looking up second blending

8   factors for the second image; and

9   looks up simultaneously the first and second blending factors using the first

10   vector of indices in the vector look up unit.

1   39.   A processing system as in claim 38 wherein the vector processing unit stores

2   the first blending factors into the first vector of blending factors in a first

3   vector register in the vector regsiter file and the second blending factors into

4   the second vector of blending factors in a second vector register in the vector

5   register file.

1   40.   A processing system as in claim 36 wherein to convert the vector of keys the

2   vector processing unit:

3   generates a first vector of indices in a vector register in the vector register

4   file, one key in the first vector of keys being replicated as a first

5   plurality of indices in the first vector of indices for looking up

6   respectively a plurality of bit segments of a first blending factor; and

7   looks up simultaneously a first vector of blending factors comprising the first

8   blending factor using the first vector of indices in the vector look up

9   unit.